

**RAPID serum alkalinisation is achieved by BOLUS administration of IV sodium bicarbonate. Hyperventilation is used to MAINTAIN serum alkalinisation.**

- Serum alkalinisation is effective in treating tricyclic antidepressant (TCA) and local anaesthetic toxicity (including cocaine).
- **Non-TCA** cardiac sodium channel blocking agents include: flecainide, propranolol, antipsychotics, lamotrigine, chloroquine, antihistamines. Response to serum alkalinisation is **variable and may be ineffective** for sodium channel blockade caused by **non-TCA** sodium channel blocking agents

## Adverse effects:

- Hypokalaemia, hypernatraemia, metabolic alkalosis, fluid overload. *Caution is advised* with pre-existing fluid and electrolyte abnormalities or alkalaemia.
- Administration of sodium bicarbonate will reduce serum potassium concentration.

## **MONITOR AND REPLACE SERUM POTASSIUM**

- Extravasation causes local tissue damage.

## Contraindications (No absolute contraindications)

## **SODIUM BICARBONATE IS NOT THE TREATMENT FOR QT INTERVAL PROLONGATION**

(see separate *QT prolongation* guideline)

## INITIAL RAPID SERUM ALKALINISATION

NOTE: One 100mL vial of 8.4% sodium bicarbonate contains 100 mmol (1 mL contains 1 mmol)

- **Aim of therapy: TO OBTAIN A SERUM pH 7.45 - 7.55**
- Method: administration of intravenous sodium bicarbonate boluses and mechanical hyperventilation

## **Dose and Administration**

*Sodium bicarbonate 8.4% should NOT be mixed with crystalloid & should be administered in separate IV line*

- Administer 8.4% sodium bicarbonate 1-2 mL/kg (1-2 mmol/kg) IV bolus as a slow push
- Obtain venous blood gas 2-3 minutes post administration to ascertain if target serum pH achieved
- Administer further 8.4% sodium bicarbonate 1 mL/kg (1 mmol/kg) boluses if necessary
- **Do NOT exceed a total of 5 mL/kg of 8.4% sodium bicarbonate (5 mmol/kg) to avoid fluid, electrolyte and acid/base adverse effects**
- **Cease administration of sodium bicarbonate if serum pH > 7.55 or [Na<sup>+</sup>] > 155 mmol/L.**
- **Do NOT use an IV infusion of sodium bicarbonate to maintain serum alkalinisation as the initial change of pH is buffered by the respiratory and renal systems. This only alkalinises the urine.**

## MAINTAINING SERUM ALKALINISATION

- Hyperventilate using mechanical ventilation to maintain pCO<sub>2</sub> value of 30-35 mmHg
- During first hour post rapid serum alkalinisation:
  - Obtain venous blood gas analysis every 15 minutes for first 1-2 hours
  - Correct hypokalaemia as required aiming for a serum potassium concentration of 4.0-4.5 mmol/L
  - Subsequently, obtain venous blood gas analysis 1-2 hourly to monitor electrolytes